

Prototyping Techniques

You will learn different techniques for rapid prototype development ranging from paper and plastic simulations to partially completed systems

James Tam

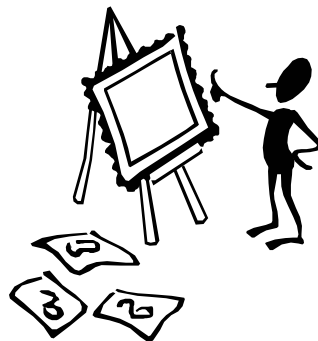
Low Fidelity Prototypes

Paper-based prototypes

- A paper mock-up of the interface look, feel, functionality
- “Quick and cheap” to prepare and modify

Purpose

- Brainstorm competing representations
- Elicit user reactions
- Elicit user modifications / suggestions



James Tam

Low Fidelity Prototypes

Sketches:

- A drawing of the high-level appearance of the intended system
- The crudity of the prototype means people concentrate on high level concepts
- It may be hard to envision the progression of a dialog

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Sketches

Screen 1: Initial order screen

THE HAPPY DUDE MENU						
BURGERS		FRIES	BEVERAGES			
			POP (COKE, SPRITE OR ROOT BEER.)	LITTLE GIGGLE SIZED	MEDIUM CHUCKLE SIZED	GREAT GUFFIN SIZED
BASIC MERRY BURGER \$1.50 (SINGLE BEEF PATTY)		SMIRLING SMALL FRIES \$0.75		\$0.50	\$1.00	\$1.75
THE JOLLY BURGER \$2.25 (DOUBLE BEEF PATTY WITH LETTUCE & TOMATO)		MEDIUM GRINNER FRIES \$1.00	JUICE (APPLE, ORANGE OR CRANBERRY)	\$1.00	\$1.50	\$1.75
CLASSIC HAPPY BURGER \$2.75 (DOUBLE BEEF PATTY, SWISS CHEESE, LETTUCE & TOMATO)		LARGE SMILEY FRIES \$1.50	COFFEE (DECAF, REGULAR, STRONG OR IRISDAKAC)	\$0.75	\$1.00	\$1.25
THE ECSTATIC BURGER \$3.50 (A TRIPLE DECKER BURGER DRIZZLING WITH SWISS CHEESE, LETTUCE & TOMATOES)		SUPER LARGE SMILEY FRIES \$1.75	TEA (HOT OR ICE)	\$0.75	\$1.00	\$1.25

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Sketches (2)

Screen 2: Payment screen

PAYMENT OPTIONS

Amount Due \$	1	2	3
Method of Payment	4	5	6
Cash \$	7	8	9
Visa \$.	0	Next format payment
MC \$			
Debit \$			
Amex \$			

Make Payment Modify Order

James Tam

Sketches (3)

Screen 3: Order confirmation screen

ORDER CONFIRMATION

PLACE-ORDER CHANGE PAYMENT CANCEL ORDER

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Sketches (4)

Screen 4: Order is confirmed

YOUR ORDER HAS
BEEN PLACED.

PLEASE TAKE YOUR RECEIPT TO
THE COUNTER TO GET YOUR
ORDER.

Thank you and come again!

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Sketches (5)

Screen 5: Inactivity screen

WARNING!

YOU HAVE BEEN IDLE FOR TOO LONG
YOU NOW HAVE 19 SECONDS TO TOUCH THE
SCREEN BEFORE YOUR ORDER IS CANCELLED

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Low Fidelity Prototypes

Storyboarding

- It's a series of key frames
 - Originally from film; used to get the idea of a scene
 - Snapshots of the interface at particular points in the interaction



- For interfaces it allows users to quickly evaluate the direction of the design

James Tam

Storyboarding

THE HAPPY DUDE MENU (PUSH BUTTON TO PLACE ORDER)						<input type="button" value="PLACE ORDER"/>	<input type="button" value="CANCEL ORDER"/>
BURGERS		FRIES	BEVERAGES				
			LITTLE GIGGLE STEED	MEDIUM COUGH STEED	GREAT GUFFAW STEED		
BASIC MERRY BURGER <small>No. ORDERED \$1.50 EACH</small>	SMIRKING SMALL FRIES <small>No. ORDERED \$0.75 EACH</small>	POP	PUSH TO ORDER <small>No. ORDERED \$0.50 EACH</small>	PUSH TO ORDER <small>No. ORDERED \$1.00 EACH</small>	PUSH TO ORDER <small>No. ORDERED \$1.75 EACH</small>	➔	
THE JOLLY BURGER <small>No. ORDERED \$2.25 EACH</small>	MEDIUM GEMMER FRIES <small>No. ORDERED \$1.00 EACH</small>	JUICE	PUSH TO ORDER <small>No. ORDERED \$1.00 EACH</small>	PUSH TO ORDER <small>No. ORDERED \$1.50 EACH</small>	PUSH TO ORDER <small>No. ORDERED \$1.75 EACH</small>		
CLASSIC HAPPY BURGER <small>No. ORDERED \$2.75 EACH</small>	LARGE SMIRKY FRIES <small>No. ORDERED \$1.50 EACH</small>	COFFEE	PUSH TO ORDER <small>No. ORDERED \$0.75 EACH</small>	PUSH TO ORDER <small>No. ORDERED \$1.00 EACH</small>	PUSH TO ORDER <small>No. ORDERED \$1.25 EACH</small>		
THE ECSTASY BURGER <small>No. ORDERED \$3.50 EACH</small>	SUPER LARGE SMIRKY FRIES <small>No. ORDERED \$1.75 EACH</small>	TEA	PUSH TO ORDER <small>No. ORDERED \$0.75 EACH</small>	PUSH TO ORDER <small>No. ORDERED \$1.00 EACH</small>	PUSH TO ORDER <small>No. ORDERED \$1.25 EACH</small>		

Initial order screen

James Tam

Storyboarding (2)

THE HAPPY DUDE MENU
(PUSH BUTTON TO PLACE ORDER)

BURGERS		FRIES	BEVERAGES		
			LEFTY SINGLE STEED	MEDIUM COWBOY STEED	GRAB GOFFAW/STEED
BASIC MERRY BURGER No. ORDERED \$1.50 EACH	SMIRKING SMALL FRIES No. ORDERED \$0.75 EACH	POP	PUSH TO ORDER No. ORDERED \$0.50 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
THE JOLLY BURGER No. ORDERED \$2.25 EACH	MEDIUM GETAWAY FRIES No. ORDERED \$1.00 EACH	JUICE	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.50 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
CLASSIC HAPPY BURGER No. ORDERED \$2.75 EACH	LARGE SMILEY FRIES No. ORDERED \$1.50 EACH	COFFEE	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$2.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH
THE ECSTATIC BURGER No. ORDERED \$3.50 EACH	SUPER LARGE SMILEY FRIES No. ORDERED \$1.75 EACH	TEA	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$2.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH

User orders an "Ecstatic Burger"

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Storyboarding (3)

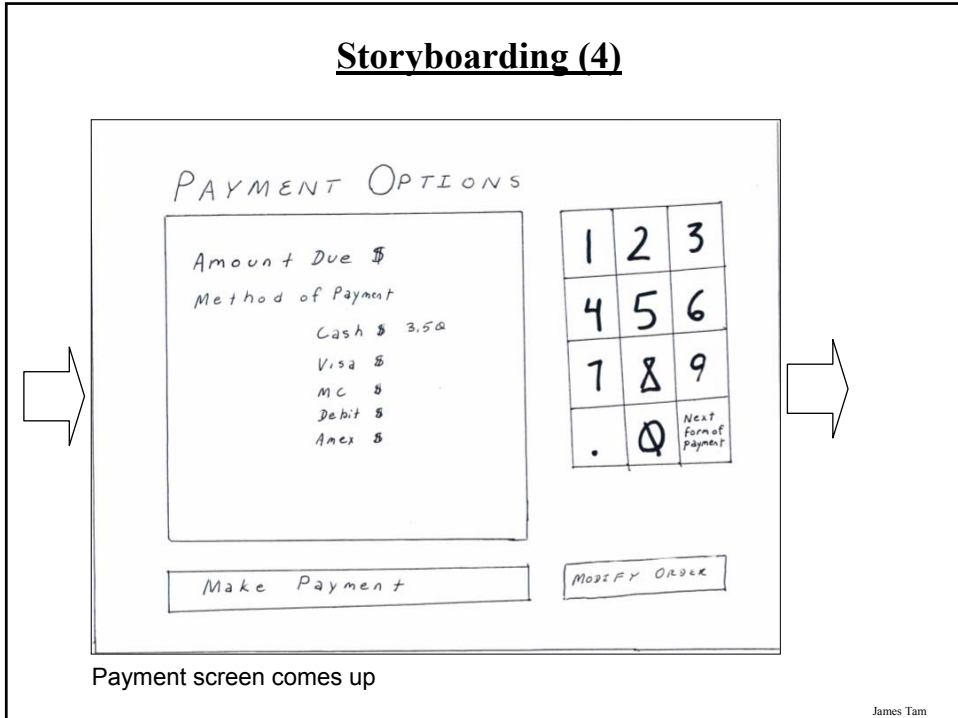
THE HAPPY DUDE MENU
(PUSH BUTTON TO PLACE ORDER)

BURGERS		FRIES	BEVERAGES		
			LEFTY SINGLE STEED	MEDIUM COWBOY STEED	GRAB GOFFAW/STEED
BASIC MERRY BURGER No. ORDERED \$1.50 EACH	SMIRKING SMALL FRIES No. ORDERED \$0.75 EACH	POP	PUSH TO ORDER No. ORDERED \$0.50 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
THE JOLLY BURGER No. ORDERED \$2.25 EACH	MEDIUM GETAWAY FRIES No. ORDERED \$1.00 EACH	JUICE	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.50 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
CLASSIC HAPPY BURGER No. ORDERED \$2.75 EACH	LARGE SMILEY FRIES No. ORDERED \$1.50 EACH	COFFEE	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$2.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH
THE ECSTATIC BURGER No. ORDERED \$3.50 EACH	SUPER LARGE SMILEY FRIES No. ORDERED \$1.75 EACH	TEA	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$2.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH

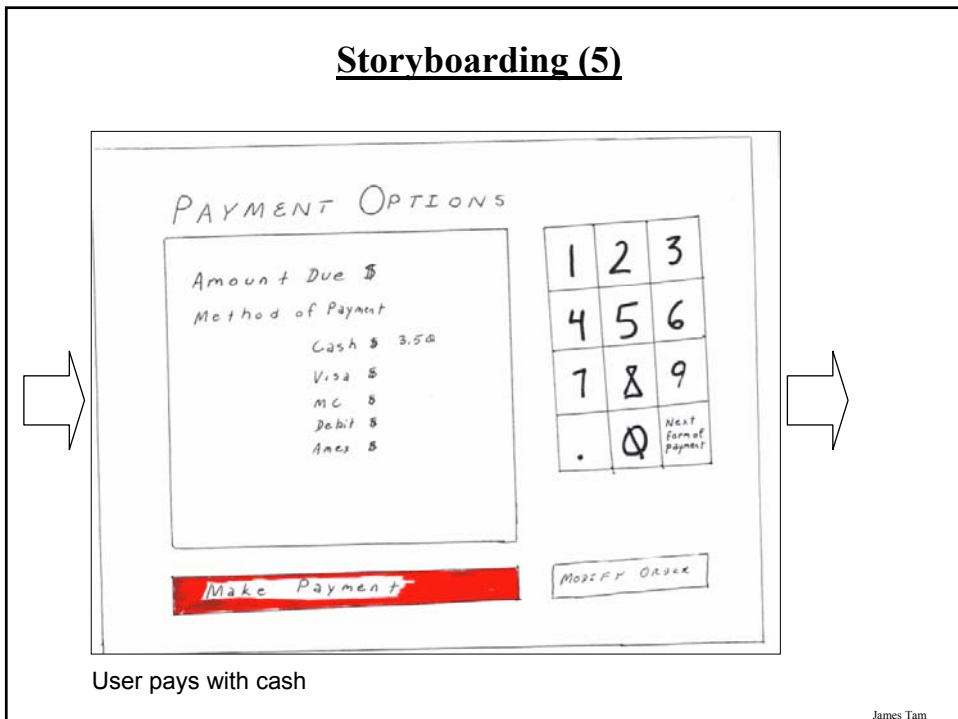
Order is placed

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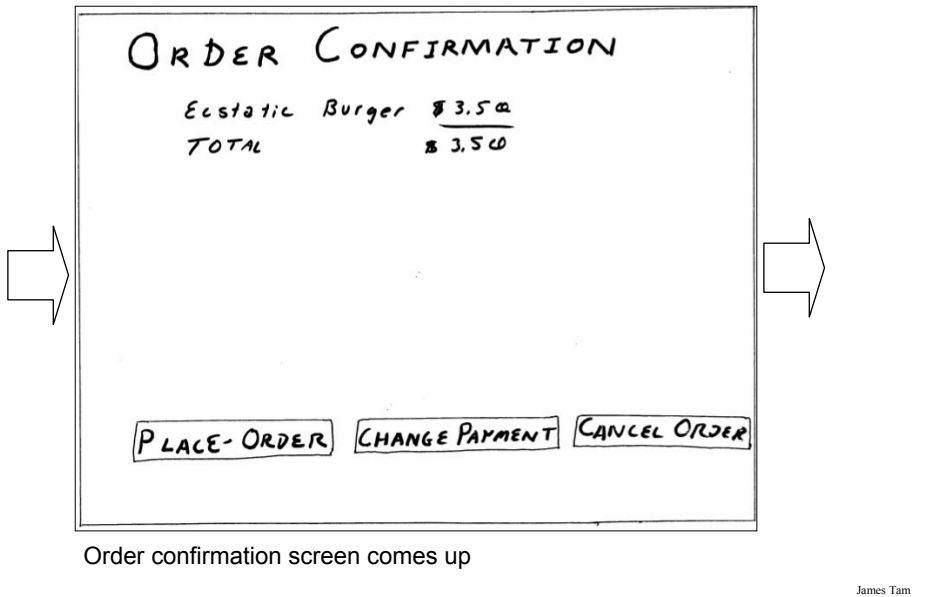
Storyboarding (4)



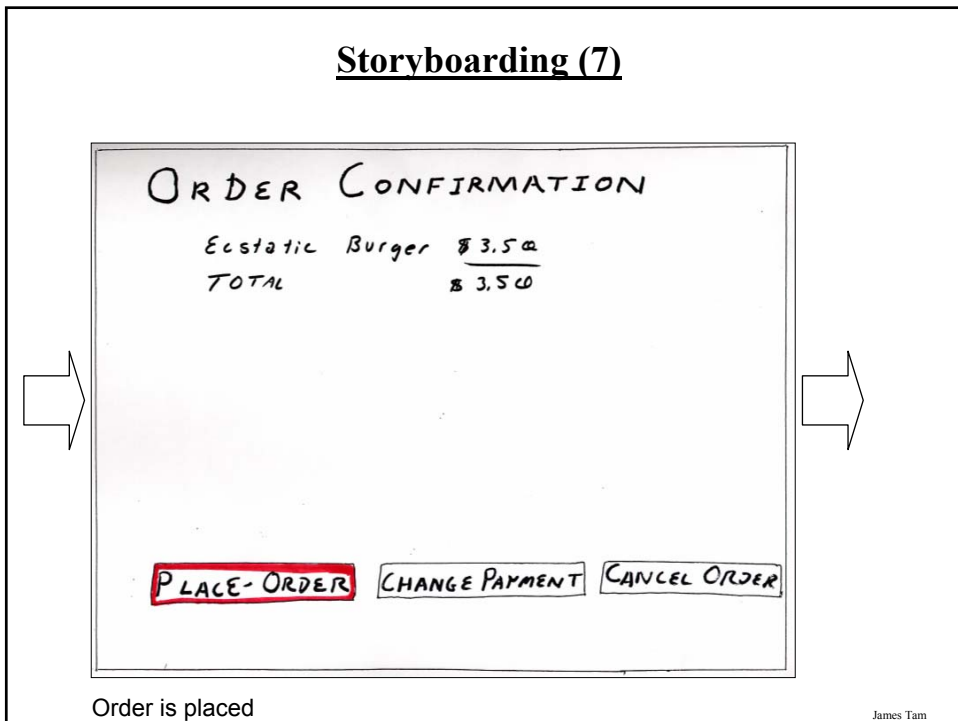
Storyboarding (5)



Storyboarding (6)



Storyboarding (7)



Storyboarding (8)



Order confirmation is shown

James Tam

Storyboarding: Alternate Path

THE HAPPY DUDE MENU
(PUSH BUTTON TO PLACE ORDER)

BURGERS		FRIES	BEVERAGES		
			LITTLE GIGGLE SIZED	MEDIUM CHUCKLE SIZED	GREAT GUFFAW SIZED
BASIC MERRY BURGER No. ORDERED \$ 1.50 EACH	SMIRKING SMALL FRIES No. ORDERED \$ 0.75 EACH	POP	PUSH TO ORDER No. ORDERED \$ 0.50 EACH	PUSH TO ORDER No. ORDERED \$ 1.00 EACH	PUSH TO ORDER No. ORDERED \$ 1.75 EACH
THE JOLLY BURGER No. ORDERED \$ 2.25 EACH	MEDIUM GLEANER FRIES No. ORDERED \$ 1.00 EACH	JUICE	PUSH TO ORDER No. ORDERED \$ 1.00 EACH	PUSH TO ORDER No. ORDERED \$ 1.50 EACH	PUSH TO ORDER No. ORDERED \$ 1.75 EACH
CLASSIC HAPPY BURGER No. ORDERED \$ 2.75 EACH	LARGE SMIRLY FRIES No. ORDERED \$ 1.50 EACH	COFFEE	PUSH TO ORDER No. ORDERED \$ 0.75 EACH	PUSH TO ORDER No. ORDERED \$ 1.00 EACH	PUSH TO ORDER No. ORDERED \$ 1.25 EACH
THE ECSTATIC BURGER No. ORDERED \$ 3.50 EACH	SUPER LARGE SMIRLY FRIES No. ORDERED \$ 1.75 EACH	TEA	PUSH TO ORDER No. ORDERED \$ 0.75 EACH	PUSH TO ORDER No. ORDERED \$ 1.00 EACH	PUSH TO ORDER No. ORDERED \$ 1.25 EACH

Initial order screen

James Tam

Storyboarding: Alternate Path (2)

THE HAPPY DUDE MENU
(PUSH BUTTON TO PLACE ORDER)

BURGERS		FRIES	BEVERAGES		
			LETTFE GIGGLE SIZE	MEDIUM CHUCKLE SIZE	G-R-BAT GUFFIN SIZE
BASIC MERRY BURGER No. ORDERED \$1.50 EACH	SMIRKING SMALL FRIES No. ORDERED \$0.75 EACH	POP	PUSH TO ORDER No. ORDERED \$0.50 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
THE JOLLY BURGER No. ORDERED \$2.25 EACH	MEDIUM GETAWAY FRIES No. ORDERED \$2.00 EACH	JUICE	PUSH TO ORDER No. ORDERED \$2.00 EACH	PUSH TO ORDER No. ORDERED \$1.50 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
CLASSIC HAPPY BURGER No. ORDERED \$2.75 EACH	LARGE SMILEY FRIES No. ORDERED \$1.50 EACH	COFFEE	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$2.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH
THE ECSTATIC BURGER No. ORDERED \$3.50 EACH	SUPER LARGE SMILEY FRIES No. ORDERED \$1.75 EACH	TEA	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH

User orders a "Basic Merry Burger"

James Tam

Storyboarding: Alternate Path (3)

THE HAPPY DUDE MENU
(PUSH BUTTON TO PLACE ORDER)

BURGERS		FRIES	BEVERAGES		
			LETTFE GIGGLE SIZE	MEDIUM CHUCKLE SIZE	G-R-BAT GUFFIN SIZE
BASIC MERRY BURGER No. ORDERED \$1.50 EACH	SMIRKING SMALL FRIES No. ORDERED \$0.75 EACH	POP	PUSH TO ORDER No. ORDERED \$0.50 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
THE JOLLY BURGER No. ORDERED \$2.25 EACH	MEDIUM GETAWAY FRIES No. ORDERED \$2.00 EACH	JUICE	PUSH TO ORDER No. ORDERED \$2.00 EACH	PUSH TO ORDER No. ORDERED \$1.50 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
CLASSIC HAPPY BURGER No. ORDERED \$2.75 EACH	LARGE SMILEY FRIES No. ORDERED \$1.50 EACH	COFFEE	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$2.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH
THE ECSTATIC BURGER No. ORDERED \$3.50 EACH	SUPER LARGE SMILEY FRIES No. ORDERED \$1.75 EACH	TEA	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH

User orders "Smirking small fries"

James Tam

Storyboarding: Alternate Path (4)

THE HAPPY DUDE MENU
(PUSH BUTTON TO PLACE ORDER)

PLACE ORDER CANCEL ORDER

BURGERS		FRIES		BEVERAGES		
				SMALL GIGGLE SIZED	MEDIUM GUCKER SIZED	GREAT GUFFAW SIZED
BASIC MERRY BURGER No. ORDERED \$1.50 EACH	SMOKING SMALL FRIES No. ORDERED \$0.75 EACH	POP	PUSH TO ORDER No. ORDERED \$0.50 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
THE JOLLY BURGER No. ORDERED \$2.25 EACH	MEDIUM GUNKER FRIES No. ORDERED \$1.50 EACH	JUICE	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.50 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
CLASSIC HAPPY BURGER No. ORDERED \$2.75 EACH	LARGE SNIKEY FRIES No. ORDERED \$1.50 EACH	COFFEE	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH
THE ECSTATIC BURGER No. ORDERED \$3.50 EACH	SUPER LARGE SNIKEY FRIES No. ORDERED \$1.75 EACH	TEA	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH

User orders a "Giggle sized pop"

James Tam

Storyboarding: Alternate Path (5)

THE HAPPY DUDE MENU
(PUSH BUTTON TO PLACE ORDER)

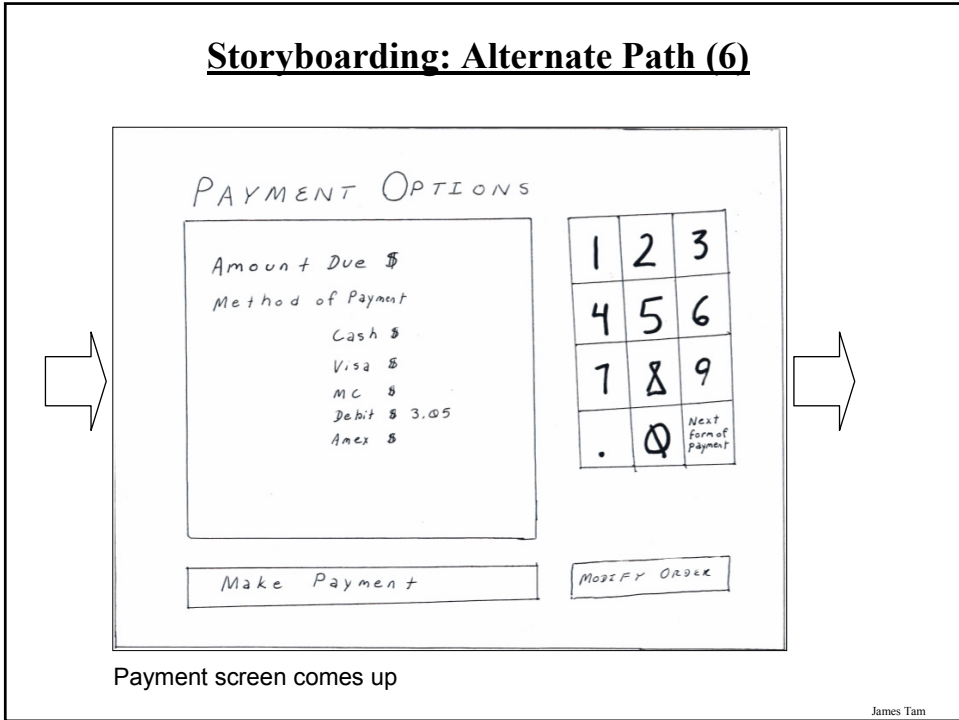
PLACE ORDER CANCEL ORDER

BURGERS		FRIES		BEVERAGES		
				SMALL GIGGLE SIZED	MEDIUM GUCKER SIZED	GREAT GUFFAW SIZED
BASIC MERRY BURGER No. ORDERED \$1.50 EACH	SMOKING SMALL FRIES No. ORDERED \$0.75 EACH	POP	PUSH TO ORDER No. ORDERED \$0.50 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
THE JOLLY BURGER No. ORDERED \$2.25 EACH	MEDIUM GUNKER FRIES No. ORDERED \$1.50 EACH	JUICE	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.50 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH	PUSH TO ORDER No. ORDERED \$1.75 EACH
CLASSIC HAPPY BURGER No. ORDERED \$2.75 EACH	LARGE SNIKEY FRIES No. ORDERED \$1.50 EACH	COFFEE	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH
THE ECSTATIC BURGER No. ORDERED \$3.50 EACH	SUPER LARGE SNIKEY FRIES No. ORDERED \$1.75 EACH	TEA	PUSH TO ORDER No. ORDERED \$0.75 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.00 EACH	PUSH TO ORDER No. ORDERED \$1.25 EACH

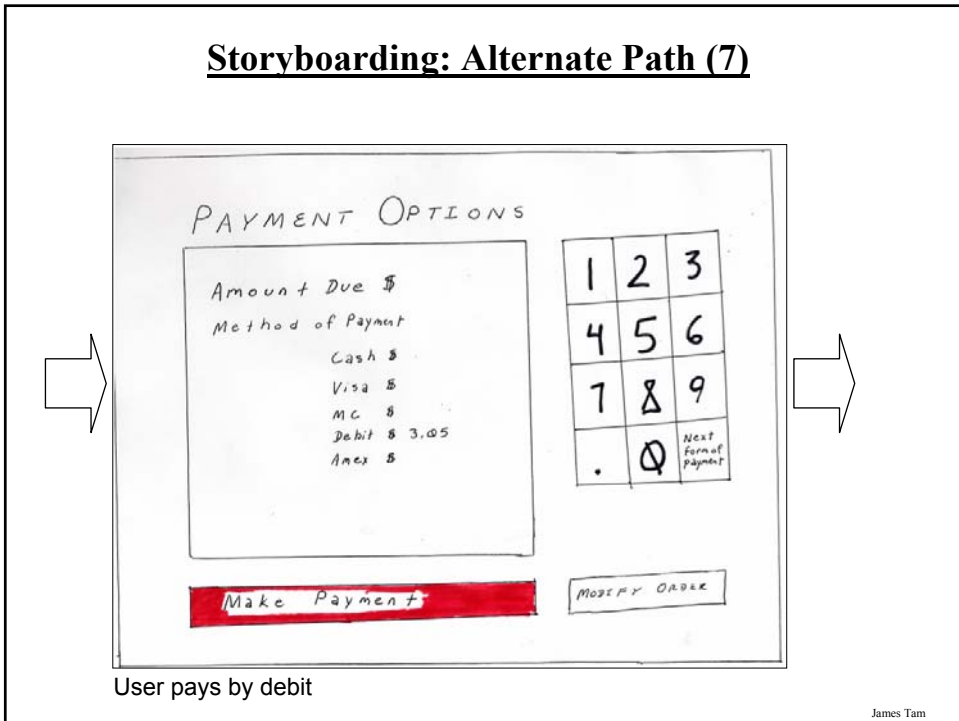
Order is placed

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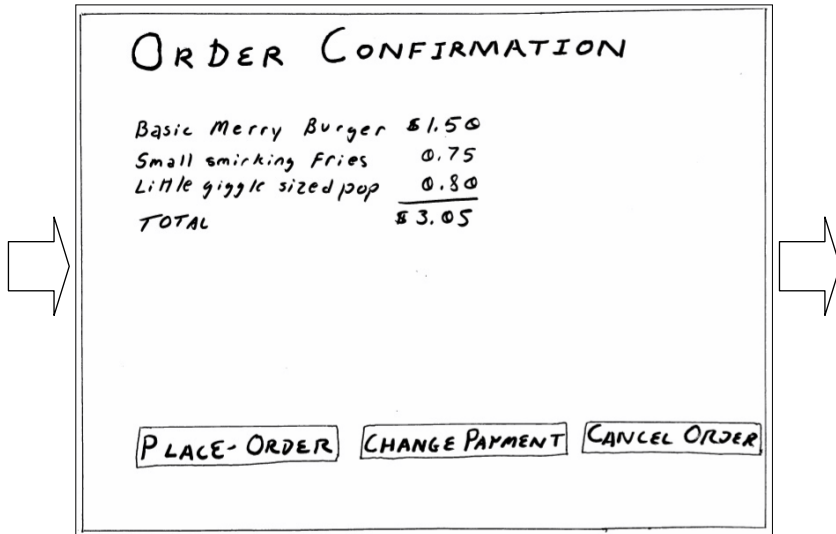
Storyboarding: Alternate Path (6)



Storyboarding: Alternate Path (7)



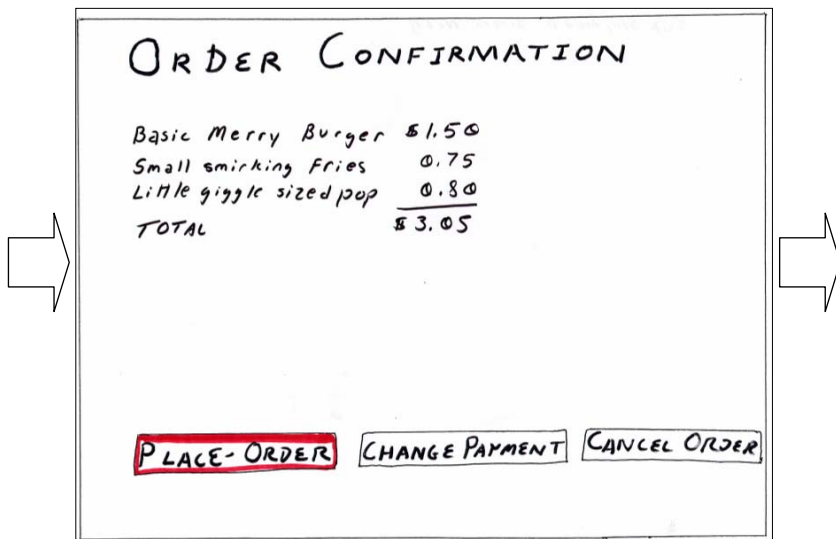
Storyboarding: Alternate Path (8)



Order confirmation screen comes up

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Storyboarding: Alternate Path (9)



Order is placed

James Tam

Storyboarding: Alternate Path (10)



Order confirmation is shown

James Tam

Low Fidelity Prototypes

Pictive

- “Plastic interface for collaborative technology initiatives through video exploration”
- Key points:
 - Design consists of multiple layers of sticky notes and plastic overlays
 - Interaction is demonstrated by manipulating notes
- Session is videotaped for later analysis
 - Usually end up with mess of paper and plastic!
 - “How does it work again?”



James Tam

Pictive

PAYMENT OPTIONS

Amount Due \$	3.50
Method of Payment	3.50
Cash \$	
Visa \$	
MC \$	
Debit \$	
Amex \$	

1	2	3
4	5	6
7	8	9
.	0	Next Form of Payment

Make Payment Modify Order

James Tam

Pictive

Circulate	Patron Update	Item Update	Utilities	Quit
Patron Status				
Fines				
Checkin				
Checkout				
Patron Search				
Reserve				

Status: No patron

Subtask 1: Find Mary's library card number
a) Select Patron Search with the mouse...

James Tam

Low Fidelity Prototypes

Tutorials and manuals

- Write them in advance of the system
- What are they?
 - Tutorial for step by step description of an interaction
an interface “walk-through” with directions
 - Manual for reference of key concepts
in-depth technical description
- If highly visual, then storyboard is set within textual explanations
- Does this work?
 - People often read manuals of competing products to check:
 - interface
 - functionality
 - match to task
 - Acts as a design tool



James Tam

Tutorials



Star Trek: The Birth of the Federation is the property of Atari: <http://www.atari.com/>

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Tutorials

DIPLOMACY

The Pakleds have offered you a Friendship treaty. To read and respond to their proposal, right-click to call up the Marker window. Click the bottom left button to bring up the Diplomacy screen.



Since you just received this proposal, you are automatically in Event mode. This mode is used to view diplomatic messages you have received. The buttons at the left side of the screen are used to change modes: Active lists active treaties involving your empire. Propose is used to propose new treaties, and Race Info is used to view reference material on races you have encountered. For now, stay in Event mode.

The proposed Friendship treaty is of indefinite length and will allow you to establish trade with the Pakleds.



Star Trek: The Birth of the Federation is the property of Atari: <http://www.atari.com/>

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Tutorials

There are three things you can do with this proposal:

1. **You can accept it by clicking the Accept button.**
2. **You can reject it by clicking the Reject button.**
3. **You can ignore it by leaving this screen.**

Your decision will be final when you end this turn. Click the Accept button and then right-click to call up the Marker window. Click the top button to return to the Main Galactic screen. Click the Turn button to send your diplomatic response to the Pakleds.

THE SUMMARY WINDOW

Since you accepted the Pakled proposal and clicked the Turn button, the Summary window will appear which tells you what happened during your turn. This window will appear whenever anything happens to a race you have encountered. Click the Summary button in the top left corner of the screen to bring up the Summary window at any time.

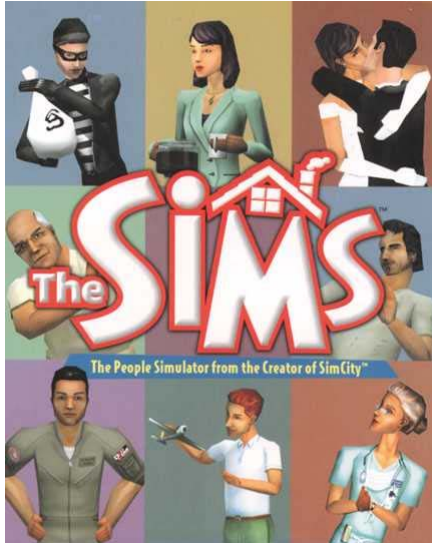
The Summary window has three modes: Events (provides up-to-date information on events), Relationships (shows current treaties) and Systems (shows vital statistics of systems you control). When you're finished, click the Close button to close the Summary window.



Star Trek: The Birth of the Federation is the property of Atari: <http://www.atari.com/>

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Manuals




"The Sims" is the property of Maxis: <http://thesims.ea.com/>

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Manuals

THE SIMS™: A WORLD INTO ITS OWN	3
TUTORIAL: THE NEIGHBORS STRETCH THEIR LEGS	5
WELCOME TO THE NEIGHBORHOOD!	8
GETTING ACQUAINTED	8
THE CONTROL PANEL (IGNORE THE PERSON BEHIND THE SCREEN)	13
THE MODES	13
CHARACTER SUBPANELS	24
FAMILIES, FROM START TO FINISH	29
BIRTH OF A HOUSEHOLD	29
LIVE MODE: THE SOUL OF A SIM	37
MOTIVES, NEEDS AND PERSONALITIES	37
AUTONOMY	42
SKILLS—IT'S A LEVING, AIN'T IT?	43
DAILY LIFE—IT'S A LEVING, AIN'T IT?	44
ENGAGING A SIM IN ACTIVITY (IT'S OBJECTIVE, MY DEAR WATSON)	46
CHARACTER CONVERSATIONS	50
FRIENDS AND LOVERS	53
MOVING IN	56
MARRIAGE	57
BABIES AND SUEW	59
KIDS	61
NEIGHBORS	63
JEALOUSY	63
MOVING OUT	64
CAREERS	65



"The Sims" is the property of Maxis: <http://thesims.ea.com/>

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Manuals

MOVING IN

Getting other folks to move in might seem like an invitation to more lost socks in the laundry, but it really can enhance your household and move your game forward. The Moving In proposition is very similar to the marriage proposal, except that the preconditions are less restrictive, and it's available only for same-sex friends. Opposite-sex friends never have Move In available as a pie menu choice. Characters who move in to another household lose their last name and take on the names of the new household.

Here are the basics for mixing the Neighborhood nuts—we mean Sims—together. First of all, and pretty obviously, a neighbor has to be in a Sim's house for it all to happen. Both Sims must be the same sex, and they've both got to be in pretty good moods. Once that's cooking, the household Sim finds "Move In" is a pie menu choice when the visiting Sim is clicked on. So if you've got a situation where a couple of opposite-sex Sims are living together and you're looking for a neighbor to move in, you need to have the Sim that's the same sex as the neighbor be the one that extends the invitation.

The plot thickens: If the two Sims' relationship is good enough, the visitor accepts. Bingo! instant housemate! If the conditions aren't ripe, the visitor declines, and so do both parties' Relationship points. The person moving in doesn't require a specific amount of household Simoleons, so watch out for moochers.

If the Sim refuses the invitation, they tell you why: "Your place isn't big enough," or "We don't know each other well enough," or "I'm in a bad mood today."



"The Sims" is the property of Maxis: <http://thesims.ea.com/>

James Tam

Medium Fidelity Prototypes

Prototyping with a computer

- Simulate or animate some but not all features of the intended system
 - Engaging for end users

Purpose

- Provides a sophisticated but limited scenario to the user to try out
- Provides a development path (from crude screens to functional system)
- Can test more subtle design issues

Danger

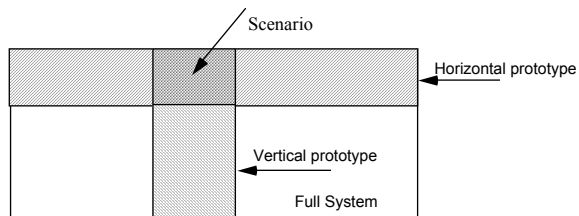
- User's reactions are usually "in the small"
 - Blinds people to major representational flaws
- Users reluctant to challenge / change the design itself
 - Designs are too "pretty", egos...
- Management may think its real!

James Tam

Medium Fidelity Prototypes

Approaches to limiting prototype functionality

- Vertical prototypes
 - Includes in-depth functionality for only a few selected features
 - Common design ideas can be tested in depth
- Horizontal prototypes
 - Surface layers includes the entire user interface with no underlying functionality
 - A simulation; no real work can be performed
- Scenario
 - Scripts of particular fixed uses of the system; no deviation allowed



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Medium Fidelity Prototypes

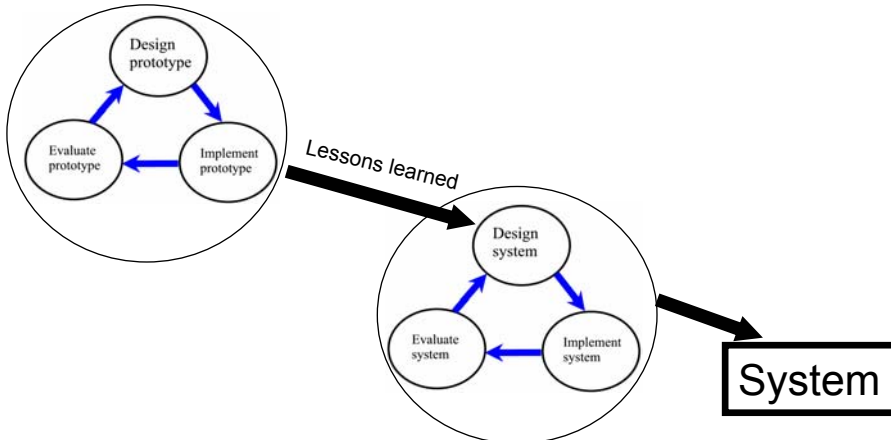
Approaches to integrating prototypes and the final product:

- Throw-away
- Incremental
- Evolutionary

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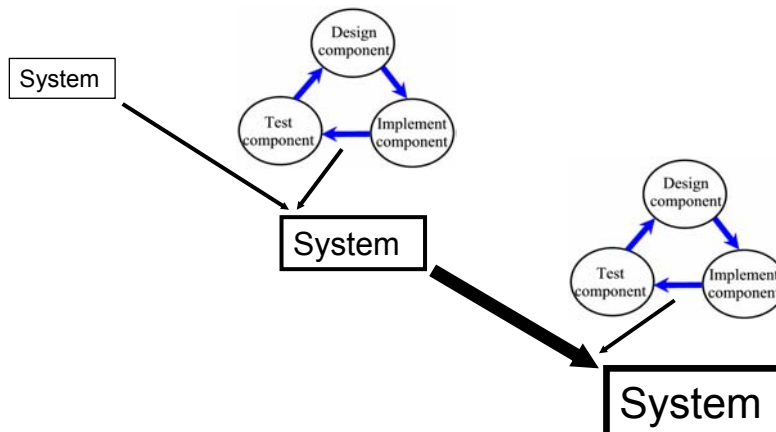
Throw-Away Approach To Prototyping

- The prototype only simulates the features of the actual system and is used to get feedback
- The prototype is built, tested and then discarded



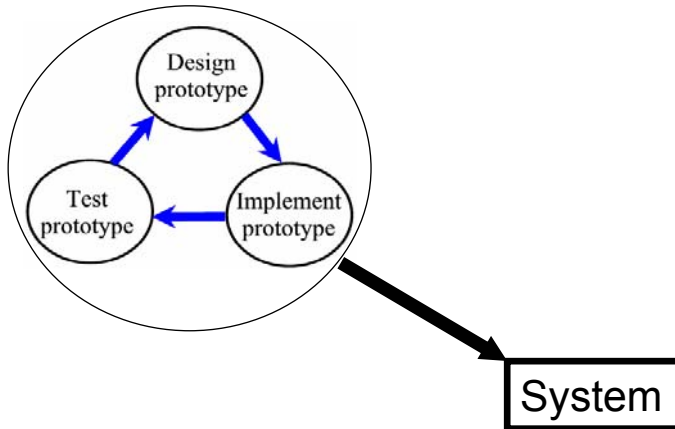
Incremental Approach To Prototyping

- Build the system as separate modules (component)
- Each module is designed, prototyped and completed separately before being added to the final system



Evolutionary Approach To Prototyping

- Change the prototype itself in order to incorporate changes
- Eventually the reworked prototype becomes the final system

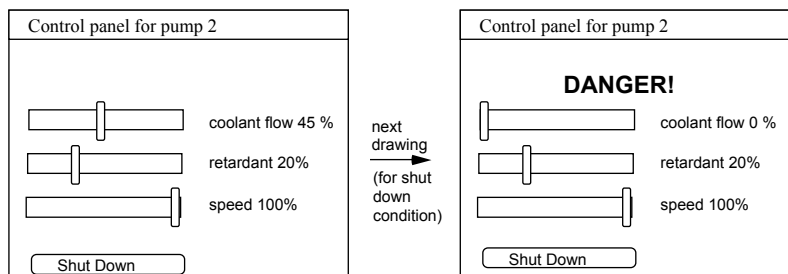


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Medium Fidelity Prototypes

Painting/drawing packages

- Draw each storyboard scene on computer
 - Neater/easier (?) to change on the fly than paper
- A very thin horizontal prototype
- Does not capture the interaction “feel”
- NOT the approach to take for the first assignment

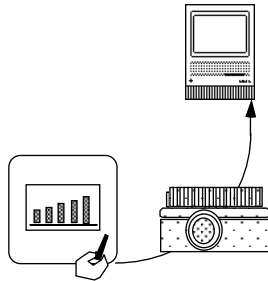


James Tam

Medium Fidelity Prototypes

Scripted simulations and slide shows

- Encode the storyboard on the computer
 - Created with media tools
 - Scene transition activated by simple user inputs
 - A simple horizontal and vertical prototype
- User given a very tight script/task to follow
 - Appears to behave as a real system
 - Deviations from the script blows the simulation



James Tam

Scripted Simulations

What to do

Find the item you want in the catalog and scan the bar code next to it.



What you selected

Item

Style

Cost

tax: _____

Total: \$ 0.00

All done?

Place your order

Print this list

Throw this list away





James Tam

Scripted Simulations

What to do Touch a different color or scan another item.	What you selected  JPG Stroller For children between 1-3 years old ... \$98. <input checked="" type="checkbox"/> Green <input type="checkbox"/> Blue <input type="checkbox"/> Red (out of stock)	
		
Item	Style	Cost
JPG Stroller	Green	98.00 <input type="button" value="Delete"/>
		tax: 6.98
		Total: \$104.98
All done?		
<input type="button" value="Place your order"/>	<input type="button" value="Print this list"/>	<input type="button" value="Throw this list away"/>

James Tam

Scripted Simulations

What to do Touch a different color or scan another item.	What you selected  JPG Stroller For children between 1-3 years old ... \$98. <input type="checkbox"/> Green <input checked="" type="checkbox"/> Blue <input type="checkbox"/> Red (out of stock)	
		
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James Tam

Scripted Simulations

What to do
Touch a different color, or scan another item.

What you selected
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For children between 1-3 years old ...\$98.

Green
 Blue
 Red (out of stock)

<u>Item</u>	<u>Style</u>	<u>Cost</u>
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tax: 6.98
Total: \$104.98

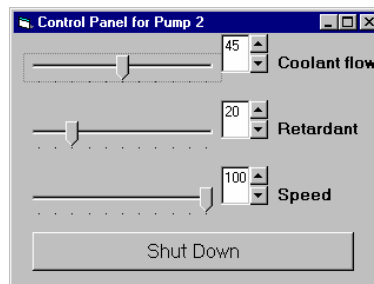
one?

James Tam

Medium Fidelity Prototypes

Interface builders

- Tools for letting a designer lay out the common widgets
- Construct mode
 - Change attributes of objects
- Test mode:
 - Objects behave as they would under real situations
- Excellent for showing look and feel
 - A broader horizontal prototype
 - But constrained to widget library
- Vertical functionality added selectively
 - Through programming



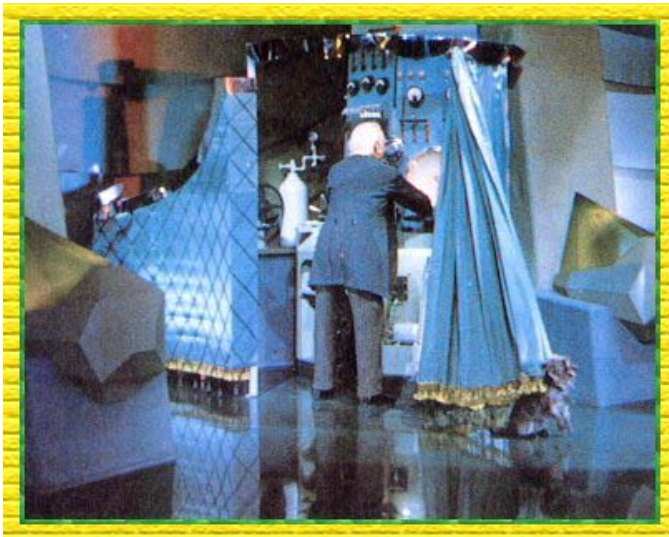
The Wizard Of OZ: The Movie



The movie "The Wizard of OZ" is the property of Time-Warner: www.warnervideo.com

James Tam

The Wizard Of OZ: The Movie



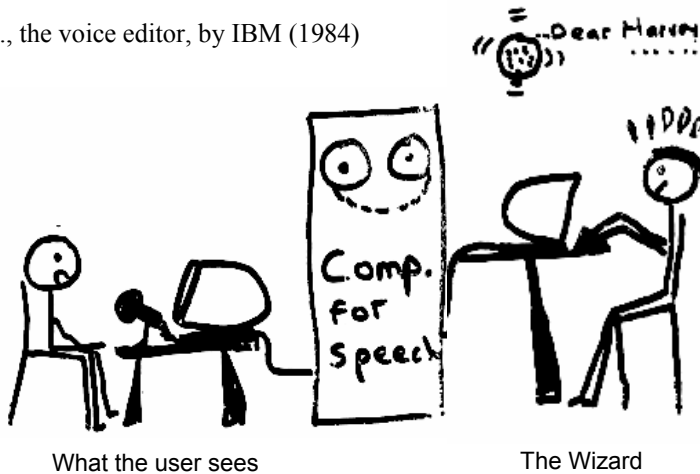
The movie "The Wizard of OZ" is the property of Time-Warner: www.warnervideo.com

James Tam

Wizard Of Oz: The Prototyping Technique

A method of testing a system that does not exist

- Human simulates the system's intelligence and interacts with user
- e.g., the voice editor, by IBM (1984)



James Tam

Wizard Of Oz: Examples

IBM: an imperfect listening typewriter using continuous speech recognition

- Secretary trained to:
 - Understand key words as "commands"
 - Types responses on screen as the system would
 - Manipulating graphic images through gesture and speech

Intelligent Agents / Programming by demonstration

- Person trained to mimic "learning agent"
 - User provides examples of task they are trying to do
 - Computer learns from them
- Shows how people specify their tasks

In both cases, system very hard to implement!

James Tam

The Prototyping Process

Early design

Brainstorm different representations
Choose a representation
Rough out interface style
Task centered walkthrough and redesign

Fine tune interface, screen design
Heuristic evaluation and redesign

Usability testing and redesign

Limited field testing

Alpha/Beta tests

Low fidelity paper prototypes

Medium fidelity prototypes

High fidelity prototypes / restricted systems

Working systems

Late design

James Tam

The Prototyping Process

Early design

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Working systems

} Assignment One

Late design

James Tam

What You Now Know

Prototyping

- Allows users to react to the design and suggest changes
- Low-fidelity prototypes best for brainstorming and choosing representations
- Medium-fidelity prototypes best for fine-tuning the design

Prototyping methods

- Storyboarding
- Pictive
- Vertical, horizontal and scenario prototyping
- Scripted simulations
- Wizard of Oz

James Tam

